

15. A semiconductor ridge laser apparatus, comprising:
a first active ridge section having a first width formed at an output end of
the laser and capable of supporting a fundamental lateral mode and one higher-order
lateral mode;

5 a second active ridge section having a second width and capable of
supporting the fundamental lateral mode and a first number of higher-order lateral
modes; and

10 a third active ridge section connecting the first and second active ridge
sections and designed to facilitate mode conversion amplification of the
fundamental and one higher-order lateral mode in the first active ridge section; and
wherein the fundamental lateral mode and the one higher-order lateral mode
form an output beam having a profile that is less astigmatic than a purely
fundamental lateral mode output beam profile.

15 16. The apparatus of claim 15, wherein the third active ridge section has a linear
taper.

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17. The apparatus of claim 25, wherein the one higher-order lateral mode is a
second-order mode.

20 18. The apparatus of claim 15, further including:
a fourth active ridge section capable of supporting the fundamental mode
and a second number of higher-order lateral modes greater than the first number of
higher-order lateral modes; and

25 a fifth active ridge section connecting the second and fourth active sections,
the fifth active section designed to facilitate mode conversion amplification of
energy in the second number of higher-order modes to energy in the fundamental
mode and the first number of higher-order modes.

30 19. The apparatus of claim 18, wherein at least one of the third and fifth active
ridge sections has a linear taper.

JV 03/02/05